



Water-Data Report 2008

01479000 WHITE CLAY CREEK NEAR NEWARK, DE

Lower Delaware Basin
Brandywine-Christina Subbasin

LOCATION.--Lat 39°41'57.2", long 75°40'30.1" referenced to North American Datum of 1983, New Castle County, DE, Hydrologic Unit 02040205, 0.4 mi downstream from the Baltimore and Ohio Railroad bridge, 1.1 mi downstream from Pike Creek, 3.8 mi east of Newark, and 5.0 mi upstream from mouth.

DRAINAGE AREA.--89.1 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1931 to September 1936, June 1943 to September 1957, October 1959 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1051: 1933(M). WSP 1382: 1932, 1934. WDR MD-DE-83-1: 1978-82(P).

GAGE.--Water-stage recorder. Datum of gage is 9.00 ft above National Geodetic Vertical Datum of 1929. Nov. 17, 1931 to Sept. 30, 1936, June 4, 1943 to Sept. 30, 1957, and Oct. 1, 1959 to Apr. 7, 1976, at site 0.5 mi upstream at datum 2.6 ft higher.

REMARKS.--Records good except those for estimated daily discharges (backwater, ice effect, erroneous gage-heights), which are fair. Flow affected by the City of Newark municipal water treatment plant upstream from the station and by withdrawals to maintain storage in the City of Newark's pumped storage reservoir. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 23 ft, previous site and datum, in July 1937 (probably affected by backwater from railroad bridge which has since been raised and widened), from information by Baltimore & Ohio Railroad.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Feb 13	1330	*1,920	*11.31

Minimum discharge, 15 ft³/s, Aug. 25.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
DAILY MEAN VALUES
[*e*, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	19	e38	67	109	452	114	116	83	80	60	41	19
2	20	e32	80	88	407	110	108	81	70	46	40	21
3	21	e28	334	76	144	106	98	77	65	37	37	19
4	22	e26	101	e70	117	104	164	75	242	39	36	18
5	23	e26	71	e66	108	239	116	72	135	44	34	21
6	23	e28	64	e72	101	153	127	71	81	55	33	435
7	23	e26	63	74	98	129	109	69	74	42	34	318
8	22	e40	73	72	91	568	101	69	69	41	32	68
9	154	e50	81	70	86	326	99	336	64	51	32	57
10	89	e46	87	70	86	195	97	147	63	50	43	116
11	122	e40	84	115	76	159	96	91	62	39	71	62
12	33	e48	72	90	75	143	137	136	57	38	32	58
13	24	e48	91	76	1,100	129	103	114	57	39	34	95
14	25	e60	123	85	377	126	95	84	57	57	41	45
15	24	86	78	75	238	122	92	78	59	45	38	34
16	25	80	534	70	184	120	90	226	57	36	32	28
17	25	65	206	77	152	112	88	155	53	38	31	34
18	24	65	104	157	164	106	87	118	55	38	30	28
19	34	151	89	122	187	192	83	131	55	37	28	27
20	99	88	81	85	148	345	83	172	56	e49	27	29
21	26	69	73	e64	127	148	81	186	58	e89	24	28
22	25	66	70	e66	124	123	79	102	56	40	23	28
23	24	66	135	e70	134	115	78	88	52	e92	22	26
24	29	66	164	71	132	111	76	81	50	e307	23	25
25	38	66	87	e64	134	107	74	77	49	64	20	26
26	144	68	94	e60	135	105	73	74	50	47	21	26
27	889	76	141	63	136	105	77	73	52	114	21	40
28	177	73	93	63	127	105	165	82	59	106	19	119
29	81	70	215	62	117	100	196	71	53	51	24	143
30	e58	69	117	71	---	97	94	70	52	42	27	58
31	e50	---	180	64	---	98	---	86	---	40	24	---
Total	2,392	1,760	3,852	2,437	5,557	4,812	3,082	3,375	2,042	1,873	974	2,051
Mean	77.2	58.7	124	78.6	192	155	103	109	68.1	60.4	31.4	68.4
Max	889	151	534	157	1,100	568	196	336	242	307	71	435
Min	19	26	63	60	75	97	73	69	49	36	19	18
Cfsm	0.87	0.66	1.39	0.88	2.15	1.74	1.15	1.22	0.76	0.68	0.35	0.77
In.	1.00	0.73	1.61	1.02	2.32	2.01	1.29	1.41	0.85	0.78	0.41	0.86
Diversions, in cubic feet per second, upstream from station for municipal supply of City of Newark. Records provided by City of Newark.												
	2.70	2.51	2.59	2.77	3.13	2.90	3.18	3.36	3.77	4.03	3.97	3.93
Mean adjusted for diversions.												
	79.9	61.2	127	81.4	195	158	106	112	71.9	64.4	35.4	72.3
Cfsm adjusted for diversions.												
	0.90	0.69	1.43	0.91	2.19	1.77	1.19	1.26	0.81	0.72	0.40	0.81
In.adjusted for diversions.												
	1.04	0.77	1.65	1.05	2.36	2.04	1.33	1.45	0.90	0.83	0.46	0.90

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 – 1936, 1943 – 1957, 1960 – 2008, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	70.9	95.2	120	146	161	177	153	126	103	94.0	78.2	85.4
Max	234	236	405	493	542	402	342	265	311	540	301	441
(WY)	(1997)	(2005)	(1997)	(1979)	(1979)	(1994)	(1983)	(1989)	(1972)	(1975)	(1967)	(2003)
Min	17.6	28.4	28.1	32.8	40.8	57.5	59.7	42.3	33.7	16.6	13.6	15.0
(WY)	(1964)	(1966)	(1966)	(1966)	(2002)	(1981)	(1963)	(1955)	(1995)	(1963)	(1966)	(1932)

SUMMARY STATISTICS

	Calendar Year 2007			Water Year 2008			Water Years 1932 – 1936, 1943 – 1957, 1960 – 2008		
Annual total	43,004			34,207					
Annual mean		118			93.5			117	
Annual mean‡		121			96.7			117	
Highest annual mean							236		2004
Lowest annual mean							47.6		2002
Highest daily mean	2,480		Apr 15		1,100		Feb 13		8,220 Sep 16, 1999
Lowest daily mean		18	Sep 30		18		Sep 4		5.0 Sep 10, 1966
Annual seven-day minimum		20	Sep 27		21		Aug 22		5.7 Sep 7, 1966
Maximum peak flow					1,920		Feb 13	a19,500	Sep 16, 1999
Maximum peak stage						11.31	Feb 13	b17.74	Jun 22, 1972
Instantaneous low flow						15	Aug 25	4.7	Sep 11, 1966
Annual runoff (cfsm)		1.32				1.05			1.32
Annual runoff (cfsm)‡		1.36				1.09			1.31
Annual runoff (inches)		17.95				14.28			17.92
Annual runoff (inches)‡		18.46				14.84			17.84
10 percent exceeds		200				154			196
50 percent exceeds		82				72			78
90 percent exceeds		28				26			32

‡ Adjusted for diversions since October 2005.

a From rating curve extended above 6,700 ft³/s on basis of contracted-opening and flow-over-road measurement at a gage height of 15.9 ft and basis of runoff comparisons with nearby stations.

b At previous site and datum.

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